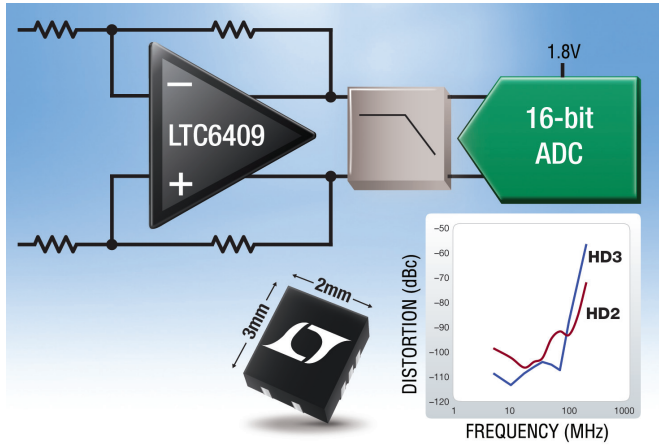


# Differential Amplifiers

## High Speed ADC Drivers



### LTC6409

- 88dB SFDR at 100MHz, 2V<sub>P-P</sub>
- 1.1nV/√Hz Input Noise Density
- 0.5V to 3.5V Output Common Mode Voltage
- Input Range Includes Ground

Differential Amplifiers/ADC Drivers

Part Number	80dBc HD2/HD3 (MHz)	90dBc HD2/HD3 (MHz)	Input-Referred Noise (nV/√Hz)	Settling Time (ns)	Output Common Mode Range (V)	V <sub>S</sub> (Min) (V)	V <sub>S</sub> (Max) (V)	I <sub>S</sub> (mA)
LTC6409	110	90	1.1	1.9 (1%)	0.5 to 3.5	2.7	5.25	52
LTC6406	30	20	1.6	11 (0.1%)	0.5 to 2	2.7	3.5	18
LTC6405	30	25	1.6	11 (0.1%)	0.5 to 3.9	4.5	5.5	18
LTC6404-4 (A <sub>V</sub> ≥ 4)	25	15	1.5	11 (0.1%)	1.1 to 3.7	2.7	5.25	30
LTC6404-2 (A <sub>V</sub> ≥ 2)	30	20	1.5	12 (0.1%)	1.1 to 4	2.7	5.25	30
LTC6404-1	15	10	1.5	13 (0.1%)	1.1 to 4	2.7	5.25	27
LTC6403-1	9	5	2.8	30 (0.1%)	1.1 to 4	2.7	5.25	11
LT1994	2	1.5	3	90 (0.1%)	1.1 to 11.8	2.375	12.6	14

Fixed Gain IF Differential Amplifiers/ADC Drivers: Single

Part Number	Voltage Gain (dB)	70dB IM3 (MHz)	80dB IM3 (MHz)	90dB IM3 (MHz)	Total Input-Referred Noise (nV/√Hz)	Output Common Mode Range (V)	Slew Rate (V/μs)	1% Settling Time (ns)	Z <sub>IN</sub> (Ω)	V <sub>S</sub> (Min) (V)	V <sub>S</sub> (Max) (V)	I <sub>S</sub> per Amplifier (mA)
LTC6416	0	350	120	-	1.8	0.5 to 2.3	3400	1.8	12k	2.7	3.9	42
LTC6400-26	26	260	200	130	1.4	1 to 1.6	6670	2	50	2.85	3.5	85
LTC6400-20	20	250	160	120	1.9	1 to 1.6	4500	0.8	200	2.85	3.5	90
LTC6400-14	14	200	170	100	2.5	1 to 1.6	6000	1.7	200	2.85	3.5	85
LTC6400-8	8	260	160	110	3.7	1 to 1.6	3810	1.8	400	2.85	3.5	85
LTC6401-26	26	140	100	50	1.44	1 to 1.6	3300	3	50	2.85	3.5	45
LTC6401-20	20	150	100	75	2.1	1 to 1.6	4500	2	200	2.85	3.5	50
LTC6401-14	14	200	140	90	2.5	1 to 1.6	3600	1.8	200	2.85	3.5	45
LTC6401-8	8	200	140	100	3.2	1 to 1.6	3400	2.3	400	2.85	3.5	45
LTC6410-6	6	140	70	-	11dB	1.2 to 1.8	1500	3	50 to 2k	2.8	5.25	104
LT6411	0 or 6	80	60	20	7.7	-	3300	6 (0.1%)	500k	4.5	12	16
LT1993-10	20	80	55	25	1.7	1.2 to 3.6	1100	4	100	4	5.5	100
LT1993-4	12	80	50	20	2.2	1.2 to 3.6	1100	4	100	4	5.5	100
LT1993-2	6	70	60	20	3.5	1.1 to 3.6	1100	4	200	4	5.5	100
LT6402-20	20	35	30	20	1.9	1.2 to 3.6	400	8	100	4	5.5	30
LT6402-12	12	35	25	15	2.6	1.2 to 3.6	400	10	100	4	5.5	30
LT6402-6	6	-	35	20	3.8	1.2 to 3.6	400	10	200	4	5.5	30

Fixed Gain IF Differential Amplifiers/ADC Drivers: Dual

LTC6420-20	20	250	140	50	2.2	1.1 to 1.6	4500	0.8	200	2.85	3.5	80
LTC6421-20	20	120	50	-	2.2	1 to 1.6	4500	2	200	2.85	3.5	40

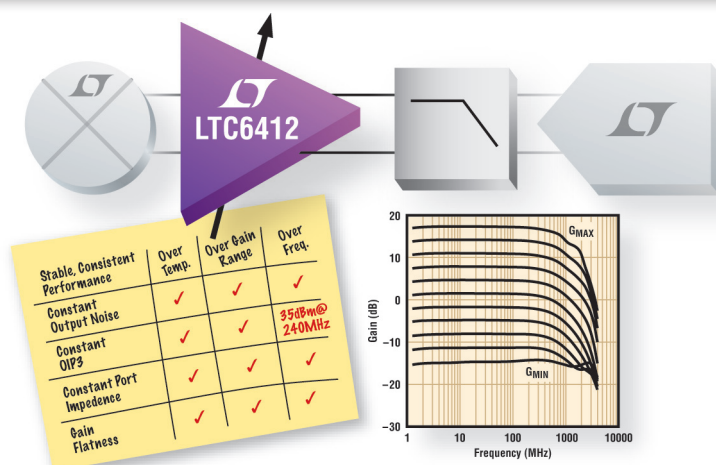


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## Variable Gain Amplifiers

### VGAs for IF and Baseband Applications

Part Number	Gain Control	Gain Range (dB)	Gain Steps (dB)	OIP3 (dBm)	NF (dB)	V <sub>S</sub> (Min) (V)	V <sub>S</sub> (Max) (V)	I <sub>S</sub> (mA)
LTC6412	Analog	-14 to 17	Continuous	35 at 240MHz	9.5	3	3.6	110
LT5554	Digital	1.725 to 17.6	0.125	48 at 200MHz	10.3	4.75	5.25	200
LT5524	Digital	4.5 to 27	1.5	40 at 50MHz	8.6	4.75	5.25	75
LT5514	Digital	10.5 to 33	1.5	47 at 50MHz	7.3	4.75	5.25	148



#### LTC6412

- 800MHz -3dB Small-Signal Bandwidth
- Continuously Adjustable Gain Control
- 14dB to +17dB Linear-in-dB Gain Range
- 35dBm OIP3 at 240MHz Across All Gain Settings
- 10dB Noise Figure at Maximum Gain
- (IIP3 - NF) = +8dBm at 240MHz Across All Gains
- 2.7nV/√Hz Input Referred Noise
- Differential Inputs and Outputs
- 50Ω Input Impedance Across All Gains

## Integrated Differential Filters/ADC Drivers

### Broadband Integrated Differential Filters/ADC Drivers: Single

Part Number	Filter Order	Cut-Off Frequency Range (MHz)	Gain (dB)	HD2/HD3 (dBc)	Total Input-Ref. Noise (nV/√Hz)	V <sub>S</sub> (Min) (V)	V <sub>S</sub> (Max) (V)	I <sub>S</sub> (mA)
LTC6601-1	2nd	5 to 28	-17 to 17	-72 at 10MHz	2.1	2.7	5.25	33
LTC6601-2	2nd	5 to 27	-17 to 17	-65 at 10MHz	5.2	2.7	5.25	16
LT6600-20	4th	20	Resistor Set	-83 at 2.5MHz	16	3	11	42
LT6600-15	4th	15	Resistor Set	-86 at 1MHz	19	3	11	35
LT6600-10	4th	10	Resistor Set	-88 at 1MHz	14	3	11	35
LT6600-5	4th	5	Resistor Set	-93 at 1MHz	16	3	11	28
LT6600-2.5	4th	2.5	Resistor Set	-88 at 1MHz	25	3	11	26

### Broadband Integrated Differential Filters/ADC Drivers: Dual

Part Number	Filter Order	Cut-Off Frequency Range (MHz)	Gain (dB)	HD2/HD3 (dBc)	Gain Match Max (dB)	Total Input-Ref. Noise (nV/√Hz)	V <sub>S</sub> (Min) (V)	V <sub>S</sub> (Max) (V)	I <sub>S</sub> per Amplifier (mA)
LTC6605-14	2nd	12.4 to 25	0, 6, 9.5	-81 at 7MHz	0.25	2.1	2.7	5.25	33
LTC6605-10	2nd	9.7 to 14	0, 12, 14	-90 at 5MHz	0.35	2.1	2.7	5.25	33
LTC6605-7	2nd	6.5 to 10	0, 12, 14	-96 at 3MHz	0.35	2.1	2.7	5.25	33
LT6604-15	4th	15	Resistor Set	-86 at 1MHz	0.6	19	3	11	35
LT6604-10	4th	10	Resistor Set	-88 at 1MHz	0.7	14	3	11	35
LT6604-5	4th	5	Resistor Set	-93 at 1MHz	0.6	16	3	11	28
LT6604-2.5	4th	2.5	Resistor Set	-88 at 1MHz	0.6	25	3	11	26
LT1568	2nd	0.2 to 5	Resistor Set	-84 at 2MHz	0.25	18μV <sub>RMS</sub>	2.7	11	26
LTC6603	9th	24kHz to 2.5MHz	0 to 24	-75 at 1MHz	0.15	40	2.7	36	44
LTC6602	5th	4.2kHz to 900kHz	0 to 30	-82 at 300kHz	0.2	20	2.7	36	33